

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-34 (canceled)

Claim 35 (previously presented): A control system for a water spa adapted to remain substantially continuously filled with water between uses and capable of outside use, comprising:

an electrical power source for providing energy to the spa;

a system interconnection panel in electrical communication with the power source, the system interconnection panel including a microprocessor and a step-down power supply for providing energy to the microprocessor;

an electric resistive heating element for heating the water, the heating element in electrical communication with the interconnection panel;

a first electronic solid state temperature sensor for detecting the temperature of the water in the spa; and

a second electronic solid state temperature sensor for detecting the temperature of the water proximate the heating element.

Claim 36 (previously presented): The control system of claim 35, wherein the first and second temperature sensors are in electrical communication with the interconnection panel.

Claim 37 (previously presented): The control system of claim 35, further comprising a control panel capable of displaying alphanumeric characters.

Claim 38 (previously presented): The control system of claim 37, wherein the control panel is in electrical communication with the interconnection panel.

Claim 39 (previously presented): The control system of claim 36, wherein the microprocessor is adapted to generate a signal capable of turning the heating element on or off.

Claim 40 (previously presented): The control system of claim 38, wherein the microprocessor is adapted to generate a signal to control the alphanumeric characters displayed on the control panel.

Claim 41 (previously presented): The control system of claim 39, wherein the water flows past the heating element, the first temperature sensor detects the water upstream of the heating element, and the second sensor detects the temperature of the water downstream of the heating element.

Claim 42 (previously presented): The control system of claim 41, wherein the microcomputer is adapted to receive a signal from the first temperature sensor that is indicative of the temperature of the water at the location of the first temperature sensor and a signal from the second temperature sensor that is indicative of the temperature of the water at the location of the second temperature sensor, and to calculate the difference between the temperature at the first sensor and the temperature at the second sensor.

Claim 43 (previously presented): The control system of claim 42, wherein the microprocessor is adapted to generate a signal capable of turning the heating element off when the difference between the temperature at the first sensor and the temperature at the second sensor exceeds a predetermined amount.

Claim 44 (previously presented): The control system of claim 35, wherein the step-down power supply is adapted to convert energy supplied by the power source into a lower power and a lower voltage as required by one or more electronic components connected thereto.

Claim 45 (previously presented): The control system of claim 35, wherein a ground fault circuit interrupter is electrically interposed between the electrical power source and the system interconnection panel.

Claim 46 (previously presented): The control system of claim 35, further comprising a pump, wherein the pump is in electrical communication with the interconnection panel.

Claim 47 (previously presented): The control system of claim 35, further comprising converter circuitry associated with the microprocessor capable of converting analog input to digital information.

Claim 48 (previously presented): The control system of claim 47, further comprising means for converting the digital information to engineering units.

Claim 49 (previously presented): The control system of claim 48, further comprising a control panel capable of displaying alphanumeric characters, and a display interface capable of causing the engineering units to be displayed on the control panel.

Claim 50 (previously presented): The control system of claim 35, further comprising an additional sensor.

Claim 51 (previously presented): The control system of claim 50, wherein the additional sensor is adapted to produce a signal indicative of the presence or the absence of water flow.

Claim 52 (previously presented): The control system of claim 50, wherein the additional sensor is adapted to produce a signal indicative of the presence or the absence of water.

Claim 53 (previously presented): The control system of claim 48, wherein the means for converting includes a curve fitting algorithm.

Claim 54 (previously presented): A water spa for bathing, comprising:

an open container adapted to remain substantially continuously filled with water between uses, wherein the container is also adapted for outside use;

an electrical power source for providing energy;

a system interconnection panel in electrical communication with the power source, the system interconnection panel including a microprocessor and a step-down power supply for providing energy to the microprocessor;

an electric resistive heating element for heating the water, the heating element in electrical communication with the interconnection panel;

a first electronic solid state temperature sensor for detecting the temperature of the water in the container; and

a second electronic solid state temperature sensor for detecting the temperature of the water proximate the heating element.

Claim 55 (previously presented): The spa of claim 54, wherein the first and second temperature sensors are in electrical communication with the interconnection panel.

Claim 56 (previously presented): The spa of claim 54, further comprising a control panel capable of displaying alphanumeric characters.

Claim 57 (previously presented): The spa of claim 56, wherein the control panel is in electrical communication with the interconnection panel.

Claim 58 (previously presented): The spa of claim 55, wherein the microprocessor is adapted to generate a signal capable of turning the heating element on or off.

Claim 59 (previously presented): The spa of claim 57, wherein the microprocessor is adapted to generate a signal to control the alphanumeric characters displayed on the control panel.

Claim 60 (previously presented): The spa of claim 58, wherein the water flows past the heating element, the first temperature sensors detects the water upstream of the heating element, and the second sensor detects the temperature of the water downstream of the heating element.

Claim 61 (previously presented): The spa of claim 60, wherein the microcomputer is adapted to receive a signal from the first temperature sensor that is indicative of the temperature of the water at the location of the first temperature sensor and a signal from the second temperature sensor that is indicative of the temperature of the water at the location of the second temperature sensor, and to calculate the difference between the temperature at the first sensor and the temperature at the second sensor.

Claim 62 (previously presented): The spa of claim 61, wherein the microprocessor is adapted to generate a signal capable of turning the heating element off when the difference between the temperature at the first sensor and the temperature at the second sensor exceeds a predetermined amount.

Claim 63 (previously presented): The spa of claim 54, wherein the step-down power supply is adapted to convert energy supplied by the power source into a lower power and a lower voltage as required by one or more electronic components connected thereto.

Claim 64 (previously presented): The spa of claim 54, wherein a ground fault circuit interrupter is electrically interposed between the electrical power source and the system interconnection panel.

Claim 65 (previously presented): The spa of claim 54, further comprising a pump, wherein the pump is in electrical communication with the interconnection panel.

Claim 66 (previously presented): The spa of claim 54, further comprising converter circuitry associated with the microprocessor capable of converting analog input to digital information.

Claim 67 (previously presented): The spa of claim 66, further comprising means for converting the digital information to engineering units.

Claim 68 (previously presented): The spa of claim 67, further comprising a control panel capable of displaying alphanumeric characters, and a display interface capable of causing the engineering units to be displayed on the control panel.

Claim 69 (previously presented): The spa of claim 54, further comprising an additional sensor.

Claim 70 (previously presented): The spa of claim 69, wherein the additional sensor is adapted to produce a signal indicative of the presence or the absence of water flow.

Claim 71 (previously presented): The spa of claim 69, wherein the additional sensor is adapted to produce a signal indicative of the presence or the absence of water.

Claim 72 (previously presented): The spa of claim [[71]]67, wherein the means for converting include a curve fitting algorithm.